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[TED 17: Shipbuilding]



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Indian Standard
SPECIFICATION FOR
SHIP'S SINGLE SHEAVE BLOCKS
WITHOUT BECKET

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SPECIFICATION FOR SHIP'S SINGLE SHEAVE BLOCKS WITHOUT BECKET

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(Continued on page 2)

(Continued from page 1)

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Indian Standard

SPECIFICATION FOR SHIP'S SINGLE SHEAVE BLOCKS WITHOUT BECKET

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 25 May 1971, after the draft finalized by the Shipbuilding Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 Ship's blocks for wire rope are used in various positions with the cargo handling gear and other general purpose work on ships. The blocks used on ships have to be tested to proof loads as specified in the Indian Dock Labourers Regulations, 1948, which is in accordance with the ILO convention.

0.2.1 This standard generally covers the regulations for the construction and testing of cargo handling appliances specified by the Classification Societies.

0.2.2 Every ship has to carry a register of periodical examination and certificates of tests of all cargo gear in the forms prescribed under the Indian Dock Labourers Regulations, 1948.

0.2.3 Ship's blocks using wire ropes are permitted to be used only as deck lead blocks, or as span blocks single or double reeved for topping the unloaded derrick. In addition, they can also be used as lead blocks, for guy tackle runners, if the runner is turned round to an angle of not more than 90°.

0.3 In the preparation of this standard, considerable assistance has been derived from the following, issued by Deutscher Normenausschuss (Germany):

- DIN 82221 Span blocks for single reeved span
- DIN 82222 Lower span tackle blocks for double reeved span
- DIN 82226 Cargo blocks without becket and lead blocks
- DIN 82228 Sheave housing for cargo and lead blocks

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard specifies the material, general dimensions and tests for ship's single sheave blocks without becket, for safe working load of 1 to 12 tonnes.

2. TERMINOLOGY

2.1 For the purpose of this standard, the terms used in IS : 6140-1971* shall apply (*see also* figure in Table 1).

2.1.1 The names of the various parts of the blocks shall be as given in figure in Table 1.

3. DESCRIPTION

3.1 Ship's single sheave blocks without becket consists of the following parts:

- a) Sheave,
- b) Cheeks,
- c) Supporting strap,
- d) Axle pin,
- e) Locking plate for axle pin,
- f) Distance piece between straps,
- g) Oval eye or double lug head fittings, and
- h) Round nut.

4. MATERIAL

4.1 Material used for the various parts of single sheave blocks shall be as shown below:

<i>Sl No.</i>	<i>Name of Part</i>	<i>Material Conforming to</i>
i) Sheave		IS : 210-1962†, Grade 25 IS : 1865-1968‡, Grade SG 38 IS : 2107-1962§ IS : 2108-1962 IS : 1570-1961¶, C20 IS : 1030-1962**

*Specification for ship's snatch blocks.

†Specification for grey iron castings (*revised*).

‡Specification for iron castings with spheroidal or nodular graphite (*first revision*).

§Specification for whiteheart malleable iron castings.

||Specification for blackheart malleable iron castings.

¶Schedules for wrought steels for general engineering purposes.

**Specification for steel castings for general engineering purposes (*revised*).

<i>Sl No.</i>	<i>Name of Part</i>	<i>Material Conforming to</i>
ii)	Cheeks	IS : 1570-1961*, open-hearth steel, fully killed of C15
iii)	Supporting strap	IS : 1570-1961*, open-hearth steel, fully killed of C15
iv)	Axle pin	IS : 1570-1961*, Siemens Martin steel of C20
v)	Locking plate for axle pin	IS : 1570-1961*, open-hearth steel, fully killed of C15
vi)	Distance piece between straps	IS : 3601-1966†
vii)	Oval eye and double lug head fittings, and round nuts	IS : 1570-1961*, C20

5. DIMENSIONS

5.1 The dimensions for the various parts of single sheave blocks shall be as shown below:

<i>Sl No.</i>	<i>Name of Part</i>	<i>Reference to</i>
i)	Block assembly	Table 1
ii)	Sheave	Type B, IS : 6143-1971‡
iii)	Cheeks	Table 2
iv)	Supporting strap	Type A, IS : 6147-1971§
v)	Axle pin	IS : 6144-1971
vi)	Locking plate for axle pin	IS : 6145-1971¶
vii)	Distance piece between straps	Table 3
viii)	Oval eye, double lug head fittings and round nut	IS : 6148-1971**

6. TOLERANCE

6.1 The tolerance on dimensions shall be coarse deviation according to IS : 2102-1969††.

7. GENERAL REQUIREMENTS

7.1 Single sheave blocks without becket shall be supplied with either oval or double lug head fittings. Span block for single reeved span and double reeved lower span tackles shall be supplied with double lug head fittings.

*Schedules for wrought steels for general engineering purposes.

†Specification for steel tubes for mechanical and general engineering purposes.

‡Specification for sheaves used with ship's blocks.

§Specification for supporting straps used with ship's blocks.

||Specification for axle pins used with ship's blocks.

¶Specification for locking plate for axle pins used with ship's blocks.

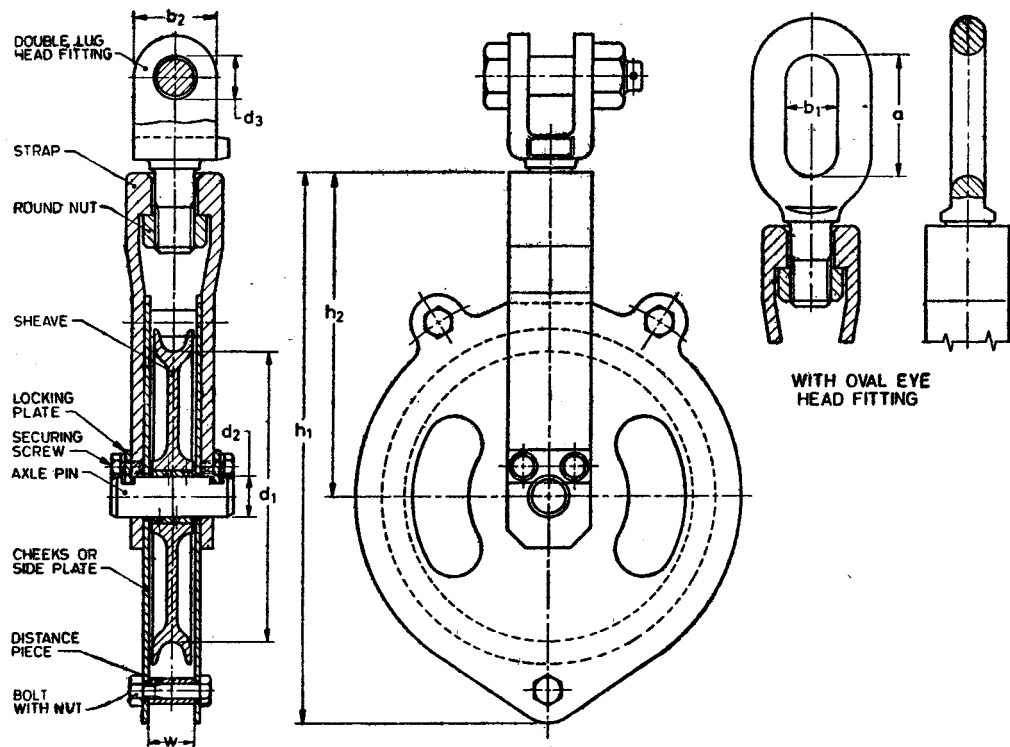
**Specification for head fittings and round nuts used with ship's blocks.

††Allowable deviations for dimensions without specified tolerances (*first revision*).

TABLE 1 ASSEMBLY OF SINGLE SHEAVE BLOCKS WITHOUT BECKET

(Clauses 2.1.1 and 5.1)

All dimensions in millimetres.



NOMINAL SIZE OF BLOCKS	SAFE WORKING LOAD FOR HEAD FITTINGS IN TONNES	a	b_1	b_2	d_1	d_2	d_3	h_1		h_2		w	DISTANCE PIECE	
								Cross Head Forged	Cross Head Welded	Cross Head Forged	Cross Head Welded		Bolt	Outside Dia
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1	2	58	26	50	170	22	23	315	321	185	191	29	M 10×45	16
2	4	94	40	65	225	32	31	420	430	250	260	36	M 12×60	20
3	6	108	45	85	255	40	40	505	515	310	320	44	M 12×70	20
4	8	115	49	95	280	45	46	555	565	345	355	50	M 12×75	20
5	10	125	54	110	315	50	50	640	653	400	413	56	M 16×90	25
6	12	144	60	120	375	55	54	720	733	440	453	63	M 16×90	25
8	16	163	66	130	400	65	62	795	811	495	511	70	M 20×110	30
10	20	173	72	140	450	70	70	895	911	550	566	78	M 20×110	30
12	25	192	80	150	505	80	74	980	1000	605	625	86	M 20×120	30

7.2 Where no specific mention is made, sheave of Type B conforming to IS:6143-1971* shall be used. Types B1, B2 or B3 may be selected depending on lubrication system desired.

8. TESTING

8.1 Single sheave blocks without becket, as a whole shall be tested to a proof load of four times the safe working load of the block. The test load shall be maintained for a period of 5 minutes.

8.2 At the end of the test, the blocks shall be opened and all parts examined for permanent deformation or other defects. The blocks shall be approved subject to there being no permanent deformation or any other defects on any of their parts.

9. MARKING

9.1 Single sheave blocks without becket shall be marked on the strap in an indelible manner with the following:

- a) Proof load in tonnes;
- b) Nominal size (safe working load in tonnes);
- c) The inspecting authority's seal with date of test; and
- d) The manufacturer's identification mark.

9.1.1 Single sheave block may also be marked with the ISI certification Mark.

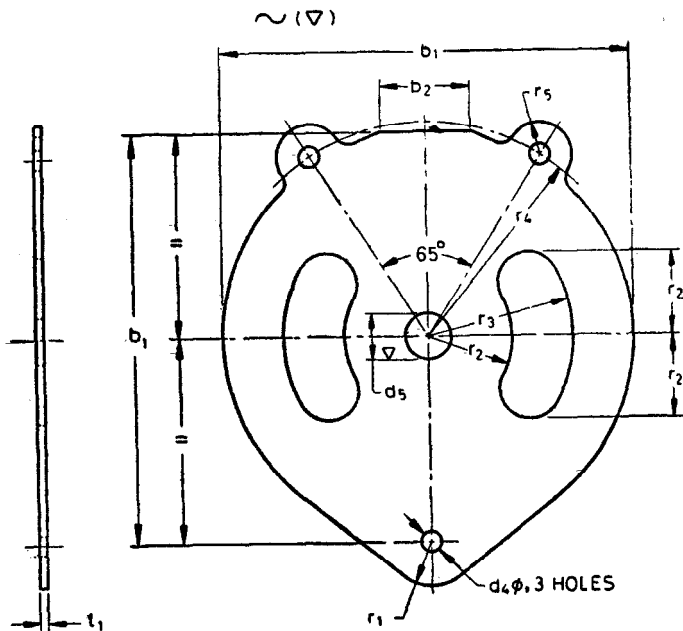
NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

*Specification for sheaves used with ship's blocks.

TABLE 2 DIMENSIONS FOR CHEEKS

(Clause 5.1)

All dimensions in millimetres.



NOMINAL SIZE OF BLOCKS	b_1	b_2	d_4	d_5	r_1	r_2	r_3	r_4	r_5	t_1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	230	50	25	11.5	25	45	80	120	18	3
2	300	65	35	14	25	60	105	160	21	4
3	340	80	45	14	25	70	120	180	21	5
4	370	90	50	14	30	80	135	195	21	5
5	420	100	55	18	35	90	150	220	27	6
6	480	110	60	18	35	100	170	255	27	6
8	520	130	70	23	40	110	185	275	35	7
10	580	140	75	23	40	120	205	310	35	7
12	640	150	85	23	45	135	230	345	35	8

TABLE 3 STEEL, SEAMLESS OR WELDED TUBE DISTANCE PIECE*(Clause 5.1)*

All dimensions in millimetres.

OUTSIDE DIAMETER	THICKNESS
(1)	(2)
16	1·8
20	2
25	2
30	2·6
